In re Patent Application of:
CAIN
Serial No. **10/043,457**
Filing Date: **JANUARY 10, 2002**

In the Claims:

Claims 1-52 (Cancelled).

53. (Previously Presented) A wireless communication network comprising:

a plurality of mobile nodes each comprising a transceiver, a phased array antenna connected to said transceiver, and a controller connected to said transceiver for

scheduling a respective semi-permanent time slot for each time frame to establish a communication link with each neighboring mobile node, each time frame having up to N semi-permanent time slots and at least 2N-1 available time slots and with one of the semi-permanent time slots being scheduled as an available time slot if a number of the communication links is less than N,

scheduling the at least one available time slot to also serve the communication link with a neighboring mobile node based upon link communications demand, and

aiming said phased array antenna toward each neighboring mobile node during communication therewith.

54. (Previously Presented) A wireless communication network according to Claim 53, wherein said controller prioritizes the communication links and schedules the at least one available time slot based upon the prioritization.

PAGE 4/24 * RCVD AT 12/3/2004 3:17:45 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/1 * DNIS:8729306 * CSID: * DURATION (mm-ss):05-34

In re Patent Application of:
CAIN
Serial No. **10/043,457**
Filing Date: **JANUARY 10, 2002**
_____/

55. (Previously Presented) A wireless communication network according to Claim 53, wherein said controller reschedules the assigned time slot back to a semi-permanent time slot if the number of the communication links is to be equal to N.

56. (Previously Presented) A wireless communication network according to Claim 53, wherein each mobile node further comprises an omni-directional antenna connected to said transceiver for exchanging positional information with other neighboring mobile nodes.

57. (Previously Presented) A wireless communication network according to Claim 53, wherein a plurality of communication links are established within a scheduled semi-permanent time slot, with each communication link including a different pair of neighboring mobile nodes.

58. (Previously Presented) A wireless communication network comprising:

a plurality of mobile nodes each comprising a transceiver, a phased array antenna connected to said transceiver, and a controller connected to said transceiver for

scheduling a respective semi-permanent time slot for each time frame to establish a communication link with each neighboring mobile node, each time frame having up to N semi-permanent time slots and at least 2N-1 available time slots,

scheduling the at least one available time slot

PAGE 5/24 * RCVD AT 12/3/2004 3:17:45 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/1 * DNIS:8729306 * CSID: * DURATION (mm-ss):05-34

to also serve the communication link with a neighboring mobile node based upon link communications demand,

aiming said phased array antenna toward each neighboring mobile node during communication therewith, and

prioritizing the communication links and dropping one of the communication links based upon the prioritization for making available a semi-permanent time slot for establishing a communication link with a new neighboring mobile node.

59. (Previously Presented) A wireless communication network according to Claim 58, wherein a plurality of communication links are established within a scheduled semi-permanent time slot, with each communication link including a different pair of neighboring mobile nodes.

60. (Previously Presented) A wireless communication network comprising:

a plurality of mobile nodes each comprising a transceiver, a phased array antenna connected to said transceiver, and a controller connected to said transceiver for

scheduling a respective semi-permanent time slot for each time frame to establish a communication link with each neighboring mobile node, each time frame having up to N semi-permanent time slots and at least 2N-1 available time slots,

scheduling the at least one available time slot

to also serve the communication link with a neighboring mobile node based upon link communications demand, and

aiming said phased array antenna toward each neighboring mobile node during communication therewith; and

each communication link being formed by an initiating mobile node and a receiving mobile node, and said initiating mobile node transmitting a list of available semi-permanent time slots to said receiving mobile node.

61. (Previously Presented) A wireless communication network according to Claim 60, wherein said receiving mobile node transmits selection of one of the semi-permanent time slots to said initiating mobile node.

62. (Previously Presented) A wireless communication network according to Claim 61, wherein said initiating mobile node confirms selection of the selected semi-permanent time slot to said receiving mobile node.

63. (Currently Amended) A wireless communication network comprising:

a plurality of mobile nodes, each mobile node comprising a phased array antenna and a plurality of transceivers connected thereto so that said phased array antenna simultaneously generates multiple antenna beams, and a controller connected to said plurality of transceivers for

scheduling a respective semi-permanent time slot for each time frame to establish a

communication link with each neighboring mobile node, each time frame having up to N semi-permanent time slots and at least 2N-1 available time slots,

scheduling the at least one available time slot to also serve the communication link with a neighboring mobile node based upon link communications demand, and

aiming said phased array antenna ~~to multiple~~ toward each neighboring mobile ~~nodes~~ node during communication therewith within a scheduled semi-permanent time slot.

64. (Previously Presented) A wireless communication network according to Claim 63, wherein the multiple antenna beams are generated on different frequencies.

65. (Previously Presented) A wireless communication network comprising:

a plurality of mobile nodes each comprising a transceiver, a directional antenna connected to said transceiver, and a controller connected to said transceiver for

scheduling a respective semi-permanent time slot for each time frame to establish a communication link with each neighboring mobile node and leaving at least one available time slot in each time frame,

scheduling the at least one available time slot to also serve the communication link with a neighboring mobile node based upon link

communications demand,

aiming said directional antenna toward each neighboring mobile node during communication therewith, and

prioritizing the communication links and dropping one of the communication links based upon the prioritization for making available a semi-permanent time slot for establishing a communication link with a new neighboring mobile node.

66. (Previously Presented) A wireless communication network according to Claim 65, wherein each time frame has up to N semi-permanent time slots and at least 2N-1 available time slots.

67. (Previously Presented) A wireless communication network according to Claim 65, wherein said controller prioritizes the communication links and schedules the at least one available time slot based upon the prioritization.

68. (Previously Presented) A wireless communication network according to Claim 65, wherein each communication link is formed by an initiating mobile node and a receiving mobile node, and wherein said initiating mobile node transmits a list of available semi-permanent time slots to said receiving mobile node.

69. (Previously Presented) A wireless communication network according to Claim 68, wherein said receiving mobile node transmits selection of one of the semi-permanent time

PAGE 9/24 * RCVD AT 12/3/2004 3:17:45 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/1 * DNIS:8729306 * CSID: * DURATION (mm-ss):05-34

slots to said initiating mobile node.

70. (Previously Presented) A wireless communication network according to Claim 69, wherein said initiating mobile node confirms selection of the selected semi-permanent time slot to said receiving mobile node.

71. (Previously Presented) A wireless communication network according to Claim 65, wherein each mobile node further comprises an omni-directional antenna connected to said transceiver for exchanging positional information with other neighboring mobile nodes.

72. (Previously Presented) A wireless communication network according to Claim 65, wherein a plurality of communication links are established within a scheduled semi-permanent time slot, with each communication link including a different pair of neighboring mobile nodes.

73. (Previously Presented) A wireless communication network comprising:

a plurality of mobile nodes each comprising a transceiver, a directional antenna connected to said transceiver, and a controller connected to said transceiver for

scheduling a respective semi-permanent time slot for each time frame to establish a communication link with each neighboring mobile node and leaving at least one available time slot in each time frame, and with one of the semi-permanent time

slots being scheduled as an available time slot if a number of the communication links is less than N,

scheduling the at least one available time slot to also serve the communication link with a neighboring mobile node based upon link communications demand, and

aiming said directional antenna toward each neighboring mobile node during communication therewith.

74. (Previously Presented) A wireless communication network according to Claim 73, wherein said controller reschedules the demand assigned time slot back to a semi-permanent time slot if the number of the communication links is to be equal to N.

75. (Currently Amended) A wireless communication network comprising:

a plurality of mobile nodes, each mobile node comprising a phased array antenna and a plurality of transceivers connected thereto so that said phased array antenna simultaneously generates multiple antenna beams, and a controller connected to said plurality of transceivers for

scheduling a respective semi-permanent time slot for each time frame to establish a communication link with each neighboring mobile node and leaving at least one available time slot in each time frame,

scheduling the at least one available time slot to also serve the communication link with a neighboring mobile node based upon link

communications demand, and

aiming said phased array antenna ~~to multiple~~ toward each neighboring mobile ~~nodes~~ node during communication therewith within a scheduled semi-permanent time slot.

76. (Previously Presented) A wireless communication network according to Claim 75, wherein the multiple antenna beams are generated on different frequencies.

77. (Previously Presented) A method for establishing communication links for a plurality of mobile nodes, each mobile node comprising a transceiver, a phased array antenna connected to the transceiver, and a controller connected to the transceiver, the method comprising for each mobile node:

scheduling a respective semi-permanent time slot for each time frame to establish a communication link with a neighboring mobile node and leaving at least one available time slot in each time frame;

scheduling the at least one available time slot to also serve the communication link with a neighboring mobile node based upon link communications demand;

aiming the phased array antenna toward each neighboring mobile node during communication therewith; and

prioritizing the communication links and dropping one of the communication links based upon the prioritization for making available a semi-permanent time slot for establishing a communication link with a new neighboring mobile node.

In re Patent Application of:
CAIN
Serial No. **10/043,457**
Filing Date: **JANUARY 10, 2002**

78. (Previously Presented) A method according to Claim 77, wherein each time frame has up to N semi-permanent time slots and at least 2N-1 available time slots.

79. (Previously Presented) A method according to Claim 77, wherein each node prioritizes the communication links and schedules the at least one available time slot based upon the prioritization.

80. (Previously Presented) A method according to Claim 77, wherein each mobile node further comprises an omni-directional antenna connected to the transceiver, the method further comprising exchanging positional information with other neighboring mobile nodes.

81. (Previously Presented) A method according to Claim 77, wherein a plurality of communication links are established within a scheduled semi-permanent time slot, with each communication link including a different pair of neighboring mobile nodes.

82. (Previously Presented) A method for establishing communication links for a plurality of mobile nodes, each mobile node comprising a transceiver, a phased array antenna connected to the transceiver, and a controller connected to the transceiver, the method comprising for each mobile node:

scheduling a respective semi-permanent time slot for each time frame to establish a communication link with a

PAGE 13/24 * RCVD AT 12/3/2004 3:17:45 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/1 * DNIS:8729306 * CSID: * DURATION (mm-ss):05-34

neighboring mobile node and leaving at least one available time slot in each time frame, and with one of the semi-permanent time slots being scheduled as an available time slot if a number of the communication links is less than N;

scheduling the at least one available time slot to also serve the communication link with a neighboring mobile node based upon link communications demand; and

aiming the phased array antenna toward each neighboring mobile node during communication therewith.

83. (Previously Presented) A method according to Claim 82, further comprising rescheduling the demand assigned time slot back to a semi-permanent time slot if the number of the communication links is to be equal to N.

84. (Previously Presented) A method for establishing communication links for a plurality of mobile nodes, each mobile node comprising a transceiver, a phased array antenna connected to the transceiver, and a controller connected to the transceiver, the method comprising for each mobile node:

scheduling a respective semi-permanent time slot for each time frame to establish a communication link with a neighboring mobile node and leaving at least one available time slot in each time frame;

scheduling the at least one available time slot to also serve the communication link with a neighboring mobile node based upon link communications demand;

aiming the phased array antenna toward each neighboring mobile node during communication therewith; and

PAGE 14/24 * RCVD AT 12/3/2004 3:17:45 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/1 * DNIS:8729306 * CSID: * DURATION (mm-ss):05-34

each communication link being formed by an initiating mobile node and a receiving mobile node, and the initiating mobile node transmitting a list of available semi-permanent time slots to said receiving mobile node.

85. (Previously Presented) A method according to Claim 84, wherein the receiving mobile node transmits selection of one of the semi-permanent time slots to the initiating mobile node.

86. (Previously Presented) A method according to Claim 85, wherein the initiating mobile node confirms selection of the selected semi-permanent time slot to the receiving mobile node.

87. (Currently Amended) A method for establishing communication links for a plurality of mobile nodes, each mobile node comprising a phased array antenna and a plurality of transceivers connected thereto so that the phased array antenna simultaneously generates multiple antenna beams, and a controller connected to the plurality of transceivers, the method comprising for each mobile node:

scheduling a respective semi-permanent time slot for each time frame to establish a communication link with a neighboring mobile node and leaving at least one available time slot in each time frame;

scheduling the at least one available time slot to also serve the communication link with a neighboring mobile node based upon link communications demand; and

aiming the phased array antenna ~~to multiple~~ toward

PAGE 15/24 * RCVD AT 12/3/2004 3:17:45 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/1 * DNIS:8729306 * CSID: * DURATION (mm-ss):05-34

each neighboring mobile ~~nodes~~ node during communication therewith within a scheduled semi-permanent time slot.

88. (Previously Presented) A method according to Claim 87, wherein the multiple antenna beams are generated on different frequencies.

89. (Previously Presented) A method for establishing communication links for a plurality of mobile nodes, each mobile node comprising a transceiver, a directional antenna connected to the transceiver, and a controller connected to the transceiver, the method comprising for each mobile node:

scheduling a respective semi-permanent time slot for each time frame to establish a communication link with a neighboring mobile node, each time frame having up to N semi-permanent time slots and at least 2N-1 available time slots;

scheduling the at least one available time slot to also serve the communication link with a neighboring mobile node based upon link communications demand;

aiming the directional antenna toward each neighboring mobile node during communication therewith; and

prioritizing the communication links and dropping one of the communication links based upon the prioritization for making available a semi-permanent time slot for establishing a communication link with a new neighboring mobile node.

90. (Previously Presented) A method according to Claim 89, wherein the directional antenna comprises a phased

array antenna.

91. (Previously Presented) A method according to Claim 89, wherein each node prioritizes the communication links and schedules the at least one available time slot based upon the prioritization.

92. (Previously Presented) A method according to Claim 89, wherein each mobile node further comprises an omni-directional antenna connected to the transceiver, the method further comprising exchanging positional information with other neighboring mobile nodes.

93. (Previously Presented) A method according to Claim 89, wherein a plurality of communication links are established within a scheduled semi-permanent time slot, with each communication link including a different pair of neighboring mobile nodes.

94. (Previously Presented) A method for establishing communication links for a plurality of mobile nodes, each mobile node comprising a transceiver, a directional antenna connected to the transceiver, and a controller connected to the transceiver, the method comprising for each mobile node:

scheduling a respective semi-permanent time slot for each time frame to establish a communication link with a neighboring mobile node, each time frame having up to N semi-permanent time slots and at least 2N-1 available time slots, and with one of the semi-permanent time slots being scheduled

as an available time slot if a number of the communication links is less than N;

scheduling the at least one available time slot to also serve the communication link with a neighboring mobile node based upon link communications demand; and

aiming the directional antenna toward each neighboring mobile node during communication therewith.

95. (Previously Presented) A method according to Claim 94, further comprising rescheduling the demand assigned time slot back to a semi-permanent time slot if the number of the communication links is to be equal to N.

96. (Previously Presented) A method for establishing communication links for a plurality of mobile nodes, each mobile node comprising a transceiver, a directional antenna connected to the transceiver, and a controller connected to the transceiver, the method comprising for each mobile node:

scheduling a respective semi-permanent time slot for each time frame to establish a communication link with a neighboring mobile node, each time frame having up to N semi-permanent time slots and at least 2N-1 available time slots;

scheduling the at least one available time slot to also serve the communication link with a neighboring mobile node based upon link communications demand;

aiming the directional antenna toward each neighboring mobile node during communication therewith; and

each communication link being formed by an initiating mobile node and a receiving mobile node, and the

initiating mobile node transmitting a list of available semi-permanent time slots to the receiving mobile node.

97. (Previously Presented) A method according to Claim 96, wherein the receiving mobile node transmits selection of one of the semi-permanent time slots to the initiating mobile node.

98. (Previously Presented) A method according to Claim 97, wherein the initiating mobile node confirms selection of the selected semi-permanent time slot to the receiving mobile node.

99. (Currently Amended) A method for establishing communication links for a plurality of mobile nodes, each mobile node comprising a phased array antenna and a plurality of transceivers connected thereto so that the phased array antenna simultaneously generates multiple antenna beams, and a controller connected to the plurality of transceivers, the method comprising for each mobile node:

scheduling a respective semi-permanent time slot for each time frame to establish a communication link with a neighboring mobile node, each time frame having up to N semi-permanent time slots and at least 2N-1 available time slots;

scheduling the at least one available time slot to also serve the communication link with a neighboring mobile node based upon link communications demand; and

aiming the phased array antenna ~~to multiple~~ toward each neighboring mobile ~~nodes~~ during communication therewith within a scheduled semi-permanent time slot.

In re Patent Application of:
CAIN
Serial No. **10/043,457**
Filing Date: **JANUARY 10, 2002**

100. (Previously Presented) A method according to Claim 99, wherein the multiple antenna beams are generated on different frequencies.

PAGE 20/24 * RCVD AT 12/3/2004 3:17:45 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/1 * DNIS:8729306 * CSID: * DURATION (mm-ss):05-34